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AUTHOR Collins, Sue; Newman, Joan
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ABSTRACT

Developed to provide Washington State educators with information on the evaluation of computer software or courseware, this booklet includes brief sections on general criteria for evaluating instructional materials, general criteria for evaluating courseware, and special considerations in evaluating courseware. Such considerations include deciding whether computer software is appropriate; specific criteria for different types of programs such as drill and practice, tutorials, or simulation; previewing; pre-purchase decisions; and finding others' courseware evaluations. A criteria and rating scale synthesized from a variety of sources is presented for use in checking software against some general criteria in the areas of content, presentation, interaction, and teacher use. Appendices contain laws and regulations governing instructional materials; criteria for the selection of instructional materials endorsed by the Washington State Board of Education (December 6, 1974); 6 sample evaluation forms; and source information for 6 review journals and 21 periodical resources in computer education. (LMM)

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Computer Technology in Curriculum and Instruction Handbook

ED247918

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Courseware Evaluation

IR 011268

Courseware Evaluation

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Assistant Superintendent
Divison of Instructional
Programs and Services

Jean Wieman
Director
Programs, Resources and Technology
and
Task Force Section Director

COMPUTER TECHNOLOGY IN CURRICULUM AND INSTRUCTION TASK FORCE

Sue Collins and Elden Egbers - Co-chairs

Ken Bumgarner
Pio DeCano
Angie Dorian
Les Francis
Bill Hiblar
Joan Newman
Sharon Huck
Alf Langland
John Swiger
C. J. Washington

"Computer figure" courtesy of Leo B. Christopherson, author of ANDROID NIM

DR. FRANK B. BROUILLET, SUPERINTENDENT OF PUBLIC INSTRUCTION

COURSEWARE EVALUATION

Prepared by

Sue Collins and Joan Newman

Section II: General Criteria for Evaluating Courseware

Prepared by

Nancy Motomatsu, Supervisor
Learning Resources

INTRODUCTION

It is the purpose of this booklet to provide Washington educators with information on the evaluation of computer software or courseware. Many of the items included in this booklet have been printed elsewhere but are compiled here for your ease of use.

This booklet includes sections on general criteria for evaluating instructional materials, general criteria for evaluating courseware, and special considerations in evaluating courseware.

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Section I

GENERAL CRITERIA FOR EVALUATING INSTRUCTIONAL MATERIALS

All instructional media and materials used in schools, both print and non-print, are subject to the same content standards, including:

Relevance to the curriculum.
Appropriate reading level/level of difficulty.
Freedom from stereotypes or demeaning biases.

Standards for the evaluation of computer software/courseware are no exception to these well established criteria. Likewise, the rules requiring a district instructional materials selection policy and adherence to that policy must include the selection of computer media within their scope, just as they include textbooks, films and the full range of other instructional media.

These customary standards and policy requirements are covered in two previously published SPI booklets, Handbook I: Guidelines for the Development of Instructional Materials Selection Policies and Handbook II: Textbook Selection Criteria. It is therefore not within the scope of this handbook to review that material. For the reader's convenience, however, especially relevant excerpts from these handbooks are included in the Appendix to this publication:

From Handbook I:

RCW 28A.58.103 Instructional Materials
Criteria for Selection of Instructional Materials Endorsed by the State Board of Education

From Handbook II:

Procedures and Generic Evaluation Criteria
Analyzing Readability

Study of the entire contents of Handbooks I and II is highly recommended.

Section II

GENERAL CRITERIA FOR EVALUATING COURSEWARE

All software should be evaluated to assure that the programs logically relate to the curriculum of the school. The following criteria and rating scale for software evaluation is a synthesis from a variety of sources, incorporating the most commonly found criteria currently used in evaluations.

The checklist will help the evaluator check software against some general criteria in the area of content, presentation, interaction and teacher use. After this general evaluation, it is intended that the user will evaluate specific materials more critically in terms of the particular type of courseware involved (drill and practice, tutorial, simulation, game, information retrieval). The rating scale was purposely limited to four choices (excellent, good, adequate, poor) to avoid an "average" rating.

Appendix III contains samples of other courseware evaluation forms.

SOFTWARE EVALUATION FORM

(A SYNTHESIS OF COMMON CRITERIA FROM MANY SOURCES)

PACKAGE TITLE_____

GRADE LEVEL_____ SUBJECT AREA_____

CURRICULUM ROLE:
____Basic
____Supplementary
____Management system
____Other

GROUPING:
____Individual
____Small group
____Large group

AUDIENCE:
____Remedial
____Gifted
____Special Needs
____Other

PROGRAM MODE:
____Drill and practice
____Tutorial
____Simulation
____Game
____Informational
____Problem solving
____Other

OVERALL EVALUATION: ____Excellent ____Good ____Adequate ____Not recommended

****

	EXCELLENT	GOOD	ADEQUATE	POOR	NOT APPLICABLE
CONTENT					
1. Package achieves specified rationale, goals, and objectives; complements ongoing curriculum	____	____	____	____	____
2. Learner competencies specified	____	____	____	____	____
3. Level of difficulty appropriate for target audience	____	____	____	____	____
4. Vocabulary used appropriate for learner	____	____	____	____	____
5. Learner able to enter program at different levels	____	____	____	____	____
PRESENTATION					
6. Instructions and presentation clear and logical	____	____	____	____	____
7. Pre-instructional strategies used (i.e., pre-tests, advance organizers, title at beginning of unit)	____	____	____	____	____

8. Graphics, color and sound used for appropriate instructional reasons (integrated into program, not distraction) ____ ____ ____ ____ ____

9. Screen displays are clear ____ ____ ____ ____ ____

10. Program flexibility accommodates both good and poor students ____ ____ ____ ____ ____

11. Instructional strategies are interesting and motivating ____ ____ ____ ____ ____

12. Materials are free of negative stereotyping ____ ____ ____ ____ ____

INTERACTION

13. Learner controls rate and sequence of presentation and review ____ ____ ____ ____ ____

14. Feedback on student responses effectively employed ____ ____ ____ ____ ____

15. Uses quick response and loading time ____ ____ ____ ____ ____

16. Program is interactive ____ ____ ____ ____ ____

17. Program is easy to use and nonthreatening (uses a minimum of special codes, instructions and symbols) ____ ____ ____ ____ ____

TEACHER USE

18. Program can be modified. ____ ____ ____ ____ ____

19. Teacher's manual provided (includes follow-up activities). ____ ____ ____ ____ ____

20. Program includes record-keeping/reporting activities (if appropriate) ____ ____ ____ ____ ____

Section III

SPECIAL CONSIDERATIONS IN EVALUATING COURSEWARE

A. When is computer software the best teaching tool?

Teachers need to be able to judge whether microcomputer software (courseware) is or is not the appropriate technology for a specific learning situation. Before making a final decision about purchasing software, the teacher should ask, "Can the lesson be taught just as efficiently and effectively (and less expensively) some other way?" If the answer is "no", then the teacher needs to take steps to evaluate the software*:

1. If available, read the documentation that is provided for the software.
2. Identify the instructional objectives that are purported to be covered by the software. Be sure they fit your curriculum.
3. Run the program as if you were a motivated and/or successful student.
4. Run the program again as if you were an unmotivated or unsuccessful student. Try both reasonable and unreasonable responses to determine if the program is user friendly.
5. Complete an evaluation form in order to systematically collect data.
6. Review the original objectives to ensure that program does indeed do what it is supposed to do. Consider alternative uses.
7. Compare the program qualities with your needs.
8. Make a decision regarding purchase.

B. What special criteria are there for different types of programs?

In addition to criteria for evaluating all computer courseware, appropriate criteria should be used for the particular type of courseware -- drill and practice, tutorial, problem-solving, gaming, simulation or information retrieval.

*Adapted from handout, St. Martin's College, Lacey, WA

Following are criteria specific to each genre**:

1. Drill and Practice -- provides practice for a skill taught previously.

   a. Is there a variety of levels of difficulty?

   b. Is additional practice provided as needed?

   c. Does the program provide management feedback--record student performance?

   d. Are positive and negative feedback given, as well as necessary hints?

2. Tutorial -- conducts actual instruction, generally in the form of a dialogue between the student and the computer.

   a. Is there an appropriate amount of interaction?

   b. Is evaluation included?

   c. Can appropriate segments be accessed by the student without going through the entire sequence?

3. Simulation -- generates models of environments, experiments, etc.

   a. Is there a reason for using a simulation rather than actual experience, for example, danger or expense?

   b. Are opportunities to generalize provided?

   c. Is graphic representation utilized?

   d. Are any assumptions identified?

   e. Is the simulation based on a valid model?

**Reprinted with permission from Minnesota Association for Supervision and Curriculum Development, The Use of a Computer to Help Teach the School Curriculum, 1982.

4. Game -- generally includes randomized events, provides an opportunity to "win," and presents some obstacles to "winning."

   a. Is the game appropriate to your needs or objectives?

   b. Is it instructional as well as diverting?

   c. Is the student motivated toward learning rather than just winning?

5. Information Retrieval -- information (data) is generated in the form of lists, graphs, tables, etc.

   a. Is documentation easy to understand?

   b. Is storage capacity adequate?

   c. Is speed of operation or access adequate?

C. How can courseware be previewed?

Previewing courseware is often a problem. Teachers should find out early what the opportunities are for previewing courseware in which they are interested. Vendors and producers have different preview policies. Some companies offer 30-day preview, but care should be taken to assure that this does not mean "preview" of a sample disk, which is rarely sufficient for evaluating the program or its utility in the classroom. Some vendors will obtain preview programs for you and allow you to do the previewing at their place of business.

Note: The amount of time teachers take to preview materials should be determined in part by the relative importance of the material in the curriculum. It is less important to give a thorough evaluation to a short, inexpensive program which will be used to supplement basic materials than it is to give close attention to all aspects of materials which will be used as basic materials for instruction. (Considerations of accurate, non-biased content and appropriate grade level, as well as simply whether the program will run, are always important, of course.)

D. Where can others' evaluations of courseware be found?

Many sources of reviews of software are available today. Refer to the Appendix for a listing of the most commonly available sources. Note that one of these is a computerized database of courseware evaluations, RICE. Details about RICE and how to access it are also given in the Appendix.

E. Are there other decisions to make before purchase?

A decision which should be made before purchase is whether or not back-up (duplicate) copies may be made as a condition of purchase, in case of damage to disks or loss of program by improper use. Many producers offer this feature as part of the purchase, with guarantees provided by the purchaser regarding the number of back-up copies to be made.

Appendix I

I. LAWS AND REGULATIONS GOVERNING INSTRUCTIONAL MATERIALS

THE LEGAL BASIS FOR SELECTION OF INSTRUCTIONAL MATERIALS IN WASHINGTON

RCW 28A.58.103 INSTRUCTIONAL MATERIALS----INSTRUCTIONAL MATERIALS COMMITTEE. Every board of directors, unless otherwise specifically provided by law, shall:

(1) Prepare, negotiate, set forth in writing and adopt, policy relative to the selection of instructional materials. Such policy shall:

(a) State the school district's goals and principles relative to instructional materials;

(b) Delegate responsibility for the preparation and recommendation of teachers' reading lists and specify the procedures to be followed in the selection of all instructional materials including text books;

(c) Establish an instructional materials committee to be appointed, with the approval of the school board, by the school district's chief administrative officer. This committee shall consist of representative members of the district's professional staff, including representation from the district's curriculum development committees, and, in the case of districts which operate elementary school(s) only, the educational service district superintendent, one of whose responsibilities shall be to assure the correlation of those elementary district adoptions with those of the high school district(s) which serve their children;

(d) Provide for terms of office for members of the instructional materials committee;

(e) Provide a system for receiving, considering and acting upon written complaints regarding instructional materials used by the school district;

(f) Provide free text books, supplies and other instructional materials to be loaned to the pupils of the school, when, in its judgment, the best interests of the district will be served thereby and prescribe rules and regulations to preserve such books, supplies and other instructional materials from unnecessary damage.

Recommendation of instructional materials shall be by the district's instructional materials committee in accordance w'th district policy. Approval shall be by the local school district's board of directors.

Appendix II

h. CRITERIA FOR SELECTION OF INSTRUCTIONAL MATERIALS ENDORSED BY THE STATE BOARD OF EDUCATION - DECEMBER 6, 1974

The cornerstone of learning resources programs should be a written selection policy that gives both shape and direction to the development of that program as an integral part of the instructional process.

In compliance with RCW 28A.58.103, requiring districts to "prepare, negotiate, set forth in writing and adopt policy relative to the selection of instructional materials," such policies and procedures shall reflect, but not be limited to, the following concerns:

(1) Instructional materials shall enrich and support the curriculum, taking into consideration the varied instructional needs, abilities, interests, and maturity levels of the students served.

(2) Instructional materials shall stimulate student growth in conceptual thinking, factual knowledge, physical fitness, literary appreciation, aesthetic values, and the development of ethical standards.

(3) Instructional materials shall be of sufficient variety so as to present opposing views of controversial issues in order that young citizens may develop the skills of critical analysis and informed decision making.

(4) Instructional materials hereafter developed or purchased shall contribute to the development of an understanding of the ethnic, cultural, and occupational diversity of American life.

(a) Instructional materials shall objectively present the concerns and build upon the contributions, current and historical, of both sexes, and members of the several specific religious, ethnic and cultural groups. School districts should recognize, however, that under certain conditions, biased materials may represent appropriate resources in presenting contrasting and differing points of view.

(b) Instructional materials shall provide models which may be used as a vehicle for the development of self-respect, ethnic pride and appreciation of cultural differences, based on respect for the worth, dignity, and personal values of every individual.

(5) Instructional materials including textbooks (single or multiple), programmed learning, telecourses, packaged courses or units, filmed courses, and the like are generally the basic resources for teaching and learning. Therefore, all of the above criteria should be adhered to in their selection.

PROCEDURES AND GENERIC EVALUATION CRITERIA

A. PRELIMINARY ACTIVITIES:

1. Create materials selection committee.

2. Establish statement of selection procedures.

3. Determine who will make the final decision.

4. Establish time lines.

5. Arrange for background information on trends.
   a. "Trend" articles in professional journals.
   b. Reviews in professional journals.
   c. Consultant help (state, university, etc.)

6. Write consensus statements on broad program goals.
   a. What is the underlying philosophy of the program?
   b. Can program emphasis be clearly identified?
   c. What should the program do for the student?
   d. Can expected skills, behaviors, or attitudes be identified?

7. Take an inventory of the local situation.
   a. Teaching staff-strengths or weaknesses in terms of training, background, experiences or special abilities.
   b. Equipment, materials, and facilities as presently available, and how they might affect the program.
   c. Administrative attitudes and budget commitment.
   d. Any district factors that could have an effect on the program.
   e. Background, abilities, attitudes and interests of the student population.

8. Arrange for securing materials samples.
   a. Contact Washington-Alaska Textbook Representatives' Association.
   b. Use list of companies in the Washington Education Directory.
   c. Call the state supervisor (i.e., language, mathematics, science, foreign language).
   d. Attend exhibits, contact vendors.

9. Request names from publishers of districts already using materials for dialog or visitations.

B. EXAMINATION PROCEDURE:

1. Distribute and discuss accompanying criteria sheet for specific content area.
   a. Revise, if necessary.
   b. Add other categories, if necessary.

2. Assign categories for in-depth examination of materials.
   a. Work singly or in pairs, depending on size of group.
   b. Work in any number of categories.

3. Check each materials set against the criteria.
   a. Each person checks all materials for one category at a time. Example: Each person checks presentation of cultural material in four samples.

4. If a weighted scale is desired, assign a weight to each criterion according to the local priorities.

5. Assign a rating to each category of each set of materials. (Depending on size of committee, decide whether this should be done singly, in pairs, in groups, etc.).
   a. Use the following rating scale:
      4 = Excellent; 3 = Acceptable; 2 = Poor; 1 = Unacceptable; 0 = Not Applicable.
   b. Accompany each rating with a brief explanation giving reasons for the rating of any particular category.
   c. Use readability rating scales such as Fry.

6. Summarize the ratings, one at a time.
   a. Each category used must be rated.
   b. Total all the ratings.

7. Rank materials according to total ratings.

8. Select by consensus from among top choices.
   a. Discussion is necessary at this point.
   b. Top choices must be adjusted in terms of local realities.
   c. See A. 6. of this section for suggestions.

C. IMPLEMENTATION: (If this component is neglected the entire process will most likely be ineffective.) Establish procedures to implement the use of the new materials.

1. Preservice.
   a. Identify services provided by publishers.
   b. Plan preservice before implementation

2. Inservice.

   a. Plan periodic inservice during the first year.
   b. Plan for inservice for new personnel.

GENERIC EVALUATION CRITERIA FOR BASIC MATERIALS

PUBLISHERS AND AUTHOR/S

- Does the publisher have a good reputation for publishing in the subject area under consideration?
- Are the major authors recognized and acknowledged authorities in the field?
- Do the supporting authors have sufficient expertise in the field?
- Is there evidence that the major authors have indeed supervised and coordinated the construction of the text rather than just lent their names to the effort?

OBJECTIVES

- Are the objectives easy to identify and clearly written?
- On what are the objectives based? Take into consideration such things as research, empirical evidence, experience, learning theory, and so forth.
- Will the objectives meet the needs or goals of your particular students and community?
- Are the objectives workable, understandable, and useful to the classroom teacher?
- Are the objectives realistic from the standpoint of what can be expected from your program?

CONTENT

- From the standpoint of child development, is the material appropriate, relevant, and interesting?
- Does the text deal effectively with minority groups both in text and in illustrations?
- Taking into consideration that young children tend to believe what they read, is the content accurate, responsible, and realistic?

ORGANIZATION/SCOPE AND SEQUENCE

- o What was the basis used for the organization of the materials?
- o Are the basic content and skills of the program available in a practical chart or outline form?
- o Can the skills listed actually be taught using the content?
- o Will the skills listed satisfy the objectives of the school's program as well as the community's priorities?
- o Are the skills listed in the scope and sequence actually taught on the pages and in the sections they purport to be?

TEACHING AND LEARNING STRATEGIES

- o Is there a suggested teaching approach?
- o Does the method require extensive preparation and training on the part of the teacher?
- o Is there any experimental evidence to indicate that the method is especially effective?
- o Are there learning strategies to accommodate the corrective and/or remedial?
- o Are there appropriate strategies to enable a new student to transfer comfortably into the program?
- o In tracing the teaching of any given skill through the series, will the amount and spacing of the teaching result in the behavior desired?
- o Is each skill presented in successively more difficult degrees and with sufficient variation?
- o Are readiness skills presented throughout the series?
- o Can the program be used in a variety of classroom organizational patterns?

EVALUATION PROCEDURES

- Are there appropriate methods of evaluating student placement in or exit from any given level?
- Is there some form of informal and formal (standardized) testing to estimate a student's overall progress or to determine specific areas of reading strength and deficiency?
- Does the publisher give information about the development, standardization, and interpretation of the formal testing program?
- Are the tests easy to administer, score, and interpret?
- Is the record keeping system simple, understandable, and efficient?

COMPONENT PARTS

- Is there a teacher's manual for each level that provides a general overview of the entire program?
- Are the teacher's manuals programmed in such a way that all teachers can follow with a minimum of orientation?
- Are there functional applications to extend and enrich the program?
- Are the readability and task requirements of the program and/or supplementary material at the independent reading level of the student?
- Do the teaching aids enhance the program in an interesting and practical manner?
- Does the usefulness of the teaching aids warrant their cost?
- Are the supplementary materials a critical part of the program?

PHYSICAL CHARACTERISTICS

- Are the aesthetics appropriate for the intended age level?
- Is the size and type of print appropriate for the level of learner intended?

- o Do the visuals stimulate creative thinking, concept development, and language growth?
- o Is the durability appropriate for the intended use of the material?

TOTAL COST

- o When comparing two programs does the predicted learning outcome justify the cost per pupil?

ANALYZING READABILITY

WARNING: Many factors influence readability. Readability formulas are estimates of readability and should not be interpreted as the readability or difficulty level of the text. They are better than nothing but tend to measure sentence and word length and in some cases "uncommon words." They do not measure "concept load," "format," "unusual syntax," "complex short vocabulary," or "unusual style." These factors must be measured by other means. Materials must not be selected or rejected on the basis of readability only.

Students will not benefit from even the best-designed curriculum materials unless they can read them. Thus reading level is an important factor in determining whether materials are appropriate for the grade levels at which they will be introduced.

The checklist on the following pages provides a comprehensive analysis of readability. If it is used conscientiously, a thorough analysis of material will be made providing for better adoption decisions. It should be noted that the use of a formula is only one item (I - N) on the checklist.

The Fry Readability Formula, which is attached, is one of the most commonly and widely used instruments in measuring readability. (Other instruments include SMOG, NEW HAMPSHIRE, LORGE, SPACHE, DALE-CHALL, CLOZE procedures, and others).

For other factors to consider in matching text to population needs, see How to Select Elementary Reading Programs, by Dr. Ruth Waugh, University of Oregon, January 11, 1979, (Northwest Reading Consortia), which contains materials on matching materials to population needs.

Readability Checklist

This checklist is designed to help you evaluate the readability of your classroom materials. It can best be used while you are thinking of a specific class. Be sure to compare the material to a fictional ideal rather than to other materials. Finally, consider supplementary materials as part of the basic material for this purpose, and rate them together. Have fun!

Rate the questions below using the following rating system:

5 - Excellent
4 - Good
3 - Adequate
2 - Poor
1 - Unacceptable
NA - Not applicable

Further comments may be written in the space provided.

Title: _____

Publisher: _____

Copyright date: _____

I. Understandability

A. _____ Are the assumptions about students' vocabulary knowledge appropriate?

B. _____ Are the assumptions about students' prior knowledge of this content area appropriate?

C. _____ Are the assumptions about students' general experiential backgrounds appropriate?

D. _____ Does the teacher's manual provide the teacher with ways to develop and review the students' conceptual and experiential backgrounds?

E. _____ Are new concepts explicitly linked to the students' prior knowledge or to their experiential backgrounds?

F. _____ Does the material introduce abstract concepts by accompanying them with many concrete examples?

G. _____ Does the material introduce new concepts one at a time with a sufficient number of examples for each one?

H. _____ Are definitions understandable and at a lower level of abstraction than the concept being defined?

I. _____ Is the level of sentence complexity appropriate for the students?

J. _____ Are the main ideas clearly stated?

K. _____ Are irrelevant details avoided?

L. _____ Are important complex relationships explicitly stated (e.g., causality, conditionality, etc.) rather than expecting the reader to infer them from the context?

M. _____ Does the teacher's manual provide lists of accessible resources containing alternative readings for the very poor or very advanced readers?

N. _____ Is the readability level appropriate (according to a readability formula)? (Fry Formula attached)

II. Learnability (Organization)

A. _____ Is an introduction provided in each section?

B. _____ Is there a clear and simple organizational pattern relating the sections to each other?

C. _____ Does each section have a clear, explicit, and simple organizational structure?

D. _____ Does the text include resources such as an index, glossary, and table of contents (or menu)?

E. _____ Do questions and activities draw attention to the organizational pattern of the material (e.g., chronological, cause and effect, spatial, topical, etc?)

F. _____ Do consumable materials interrelate well with the basic material?

G. _____ Is the vocabulary appropriately sequenced from simple to more complex?

H. _____ Are definitions for vocabulary appropriately placed (close to the word or in glossary)?

(Reinforcement)

A. _____ Does the material provide opportunities for students to practice using new concepts?

B. _____ Are there summaries at appropriate intervals?

C. _____ Are adequate iconic aids such as maps, graphs, illustrations, etc. provided to reinforce concepts?

D. _____ Are the iconic aids appropriately placed near the textual reference (or provided for easy reference)?

E. _____ Are there adequate suggestions for usable supplementary activities?

F. _____ Do these activities provide for a broad range of ability levels?

G. _____ Are there literal recall questions provided for the students' self review?

H. _____ Do some of the questions encourage the students to draw inferences?

I. _____ Are there discussion questions which encourage creative thinking?

J. _____ Are questions clearly worded?

(Motivation)

A. _____ Does the teacher's manual provide introductory activities that will capture students' interest?

B. _____ Are titles and subheadings concrete, meaningful, or interesting?

C. _____ Is the writing style appealing to the students?

D. _____ Are the activities motivating? Will they make the student want to pursue the topic further?

E. _____ Does the material clearly show how the knowledge being learned might be used by the learner in the future?

F. _____ Is the format appealing to the students?

G. _____ Are positive and motivating models provided for both sexes as well as for other racial, ethnic and socio-economic groups?

III. Readability Analysis
(Weaknesses)

1) On which items was the lowest rating given?
2) Did these items tend to fall in certain categories?
3) Summarize the weaknesses of this material.
4) What can you do in class to compensate for weaknesses?

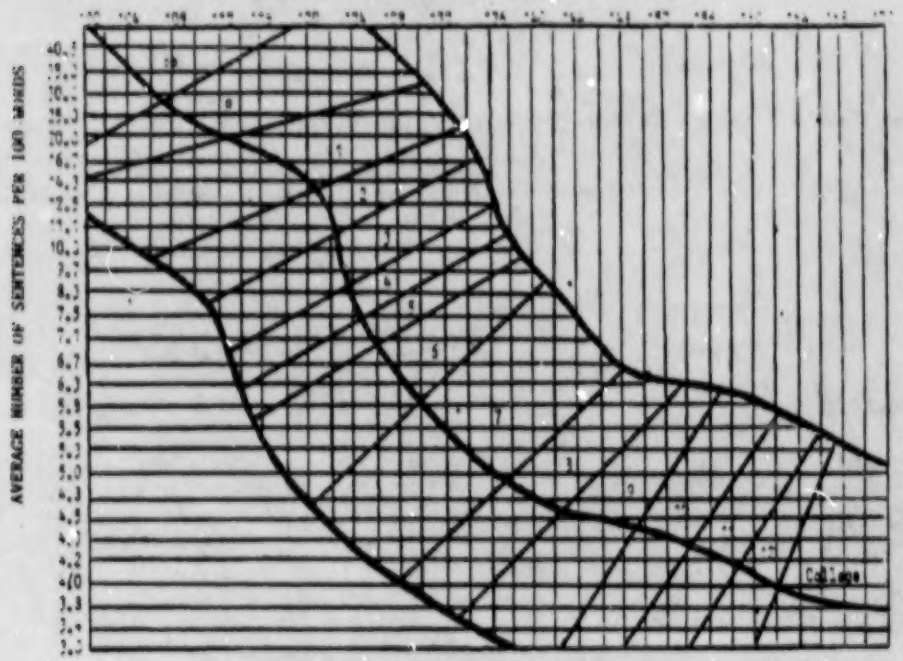
(Assets)

1) Which items were rated the highest?
2) Did these items fall in certain categories?
3) Summarize the assets of this material.
4) What can you do in class to take advantage of the assets of this material?

Source: "Assessing Readability: The Checklist Approach" by Judith Westphal Irwin and Carol A. Davis, Purdue University, Journal of Reading. November, 1980.

FRY READABILITY GRAPH

Edward Fry, Ph.D., Rutgers University



Directions for using the readability graph:

1) Select three 100 word passages from near the beginning, middle, and end of the book. Skip all proper nouns.

2) Count the total number of sentences in each 100 word passage (estimating to the nearest tenth of a sentence). Average these three numbers.

3) Count the total number of syllables in each 100 word sample. There is a syllable for each vowel sound; for example: cat (1), blackbird (2), continental (4). Don't be fooled by word size; for example: polio (3), through (1). Endings such as -y, -ed, or -le usually make a syllable; for example: ready (2). Average the total number syllables for the three samples.

4) Plot on the graph the average number of sentences per 100 words and the average number of syllables per 100 words. Most plot points fall near the heavy curved line. Perpendicular lines mark off approximate grade level areas.

5) An alternative practice is to indicate the range of readability by plotting the scores on various passages rather than averaging the results of three selections.

FRY READABILITY GRAPH

Report Sheet

Name of reviewer _____ Course _____ Sec. _____

Material: Book, magazine, etc., including title, author, copyright date.

_____

_____

_____

	Page(s)	Sentences	Syllables	Level
Sample #1	_____	_____	_____	_____
Sample #2	_____	_____	_____	_____
Sample #3	_____	_____	_____	_____

AVERAGE

Remarks about findings: _____

_____

_____

_____

_____

_____

_____

_____

_____

Appendix III

COURSEWARE DESCRIPTION

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

Title _____ Version Evaluated _____

Producer _____ Cost _____

Subject/Topics _____

Grade Level(s) (circle): pre-1 1 2 3 4 5 6 7 8 9 10 11 12 post-secondary

Required Hardware _____

Required Software _____

Software protected? ☐yes ☐no Medium of Transfer: ☐Tape Cassette ☐ROM Cartridge ☐5¼" Flexible Disk ☐8" Flexible Disk

Back Up Policy _____

Producer's field test data is available ☐on request ☐with package ☐not available

INSTRUCTIONAL PURPOSES & TECHNIQUES
please check all applicable

- ☐Remediation
- ☐Standard instruction
- ☐Enrichment
- ☐Assessment
- ☐Instructional management
- ☐Authoring
- ☐Drill and practice
- ☐Tutorial
- ☐Information retrieval
- ☐Game
- ☐Simulation
- ☐Problem Solving
- ☐Other _____

DOCUMENTATION AVAILABLE
circle P (program) S (supplementary material)

- P S Suggested grade/ability level(s)
- P S Instructional objectives
- P S Prerequisite skills or activities
- P S Sample program output
- P S Program operating instructions
- P S Pre-test
- P S Post-test
- P S Teacher's information
- P S Resource/reference information
- P S Student's instructions
- P S Student worksheets
- P S Textbook correlation
- P S Follow-up activities
- P S Other _____

OBJECTIVES ☐Stated ☐Inferred

PREREQUISITES ☐Stated ☐Inferred

Describe package CONTENT AND STRUCTURE, including record keeping and reporting functions

use back for more space

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microSIFT COURSEWARE EVALUATION

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

Package title _____ Producer _____

Evaluator name _____ Organization _____

Date _____ ☐ Check this box if this evaluation is based partly on your observation of student use of this package

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree NA = Not applicable
Please include comments on individual items on the reverse page.

CONTENT CHARACTERISTICS						
(1)	SA	A	D	SD	NA	The content is accurate.
(2)	SA	A	D	SD	NA	The content has educational value.
(3)	SA	A	D	SD	NA	The content is free of race, ethnic, sex and other stereotypes.
INSTRUCTIONAL CHARACTERISTICS						
(4)	SA	A	D	SD	NA	The purpose of the package is well defined.
(5)	SA	A	D	SD	NA	The package achieves its defined purpose.
(6)	SA	A	D	SD	NA	Presentation of content is clear and logical.
(7)	SA	A	D	SD	NA	The level of difficulty is appropriate for the target audience.
(8)	SA	A	D	SD	NA	Graphics/color/sound are used for appropriate instructional reasons.
(9)	SA	A	D	SD	NA	Use of the package is motivational.
(10)	SA	A	D	SD	NA	The package effectively stimulates student creativity.
(11)	SA	A	D	SD	NA	Feedback on student responses is effectively employed.
(12)	SA	A	D	SD	NA	The learner controls the rate and sequence of presentation and review.
(13)	SA	A	D	SD	NA	Instruction is integrated with previous student experience.
(14)	SA	A	D	SD	NA	Learning can be generalized to an appropriate range of situations.
TECHNICAL CHARACTERISTICS						
(15)	SA	A	D	SD	NA	The user support materials are comprehensive.
(16)	SA	A	D	SD	NA	The user support materials are effective.
(17)	SA	A	D	SD	NA	Information displays are effective.
(18)	SA	A	D	SD	NA	Intended users can easily and independently operate the program.
(19)	SA	A	D	SD	NA	Teachers can easily employ the package.
(20)	SA	A	D	SD	NA	The program appropriately uses relevant computer capabilities.
(21)	SA	A	D	SD	NA	The program is reliable in normal use.

QUALITY

Write a number from 1 (low) to 9 (high) which represents your judgement of the quality of the package in each division:

___ Content
___ Instructional Characteristics
___ Technical Characteristics

RECOMMENDATIONS

- ☐ I highly recommend this package.
- ☐ I would use or recommend use of this package with little or no change. (Note suggestions for effective use below.)
- ☐ I would use or recommend use of this package only if certain changes were made. (Note changes under weaknesses or other comments.)
- ☐ I would not use or recommend this package. (Note reasons under weaknesses.)

Describe the potential use of the package in classroom settings

*Estimate the amount of time a student would need to work with the package in order to achieve the objectives: (Can be total time, time per day, time range or other indicator.)

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Strengths:

Weaknesses:

Other comments:

18a

PERSONAL EVALUATION CRITERIA FOR EDUCATIONAL MATERIALS

Name: _____

Instructions:

On this sheet list general characteristics or features that you desire in educational materials (books, films, educational games, etc.).

MECC

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SAMPLE LIST OF GENERAL EVALUATION FACTORS FOR EDUCATIONAL MATERIALS

ACCURATE SUBJECT MATTER

APPROPRIATE READING LEVEL

APPROPRIATE LENGTH OF ACTIVITY

CLEAR, CONCISE INSTRUCTIONS

LOGICAL SEQUENCE OF ACTIVITY

ATTRACTIVE LAYOUT AND PRESENTATION

CORRECT GRAMMAR USED

MOTIVATIONAL

SOCIALLY ACCEPTABLE
(CONSIDER STEREOTYPES, REFERENCES TO VIOLENCE, ETC.)

COMPLETE TEACHER SUPPORT MATERIALS
(LESSON SUGGESTIONS, WORKSHEETS, ANSWER KEYS, ETC.)

COST

11a

ADDITIONAL EVALUATION CRITERIA
FOR COMPUTER-BASED EDUCATIONAL COURSEWARE

USES COMPUTER CAPABILITIES APPROPRIATELY
- INTERACTIVE
- RANDOM EVENTS
- GRAPHICS & ANIMATION
- SOUND

USER CONTROLS PROGRAM
- MOVEMENT BETWEEN SCREENS
- PROGRAM OPTIONS

EASY "FOOLPROOF" INPUT
- CLEAR OPTIONS
- AVOIDS EXCESSIVE TYPING
- HANDLES UNUSUAL INPUTS WELL

EFFECTIVE AND APPROPRIATE REINFORCEMENT

MECC

COMPUTER SOFTWARE SELECTION CHECKLIST

	Response	
A. CONTENT — The same considerations apply as for other instructional media. Overall:		
1. Is the content appropriate to your needs?	Yes	No
2. Does it support your curriculum objectives?	Yes	No
B. INSTRUCTIONAL DESIGN — Numerous types of programs are available. The following are common examples and some of the concerns of each:		
1. **Drill and Practice** — provides practice for a skill taught previously.		
a. Is there a variety of levels of difficulty?	Yes	No
b. Is additional practice provided as needed?	Yes	No
c. Does the program provide management feedback—record student performance?	Yes	No
d. Are positive and negative feedback given, as well as any necessary hints?	Yes	No
2. **Tutorial** — conducts actual instruction, generally in the form of a dialogue between the student and the computer.		
a. Is there an appropriate amount of interaction?	Yes	No
b. Is evaluation included?	Yes	No
c. Can appropriate segments be accessed by the student without going through the entire sequence?	Yes	No
3. **Simulation** — generates models of environments, experiments, etc.		
a. Is there a reason for using a simulation rather than actual experience, for example, danger or expense?	Yes	No
b. Are opportunities to generalize provided?	Yes	No
c. Is graphic representation utilized?	Yes	No
d. Are any assumptions identified?	Yes	No
e. Is the simulation based on a valid model?	Yes	No
4. **Game** — generally includes randomized events, provides an opportunity to "win," and presents some obstacles to "winning."		
a. Is the game appropriate to your needs or objectives?	Yes	No
b. Is it instructional as well as diverting?	Yes	No
c. Is the student motivated toward learning rather than just winning?	Yes	No

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		Response	
5.	**Information Retrieval** — information (data) is generated in the form of lists, graphs, tables, etc.		
	a. Is documentation easy to understand?	Yes	No
	b. Is storage capacity adequate?	Yes	No
	c. Is speed of operation or access adequate?	Yes	No
6.	**Utility** — a support program for the teacher to generate student activities, e.g., crossword puzzles, word games, individualized spelling or math drills, etc.		
	a. Is the utility program flexible?	Yes	No
	b. Is it easy to use?	Yes	No
	c. Is it well documented?	Yes	No
7.	**Management** — record keeping of student performance, which may be an integral part of another program or used alone as a source of diagnosis and prescription.		
	a. Is it easy to use?	Yes	No
	b. Is format suitable for reporting?	Yes	No
	c. Does it insure student privacy?	Yes	No
	(N.b. Combinations of the types of programs listed above are common, so it may be difficult to label some programs as to specific type.)		
8.	Is the program free of racial/sexual, social stereo-types, inappropriate language, etc?	Yes	No

C. PRESENTATION

1.	**Purpose** — Is the intended use—initial instruction, remediation, guided practice, independent practice or enrichment/extension—evident?	Yes	No
2.	**Directions** — Are they clear to the students?	Yes	No
3.	**Objectives** — Does the student know what is to be gained by using the program?	Yes	No
4.	**Feedback** — Is it effective from the students' perspective?	Yes	No
	a. Does the feedback vary with the performance?	Yes	No
	b. Does the learner get a correct answer after three or less wrong attempts?	Yes	No
	c. Does the feedback lead to additional learning or merely state "right" or "wrong"?	Yes	No
5.	**Display** — Is the program visually appealing, attractive, readable?	Yes	No
6.	**Ease of Use** — Can the program be used independently with a minimum of teacher preparation or intervention?	Yes	No

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	Response	
7. User Control — Does the student have control over rate of presentation?	Yes	No
a. Can the student begin the instruction at a level appropriate to his or her ability?	Yes	No
b. Can the student seek help from the program?	Yes	No
8. Theoretical Basis — Does the instructional design reflect sound learning theory?	Yes	No
9. Is the order of presentation logical and sequential?	Yes	No
10. Have any critical prerequisite skills been identified?	Yes	No
a. Is it clear what the student must know or be able to do before using the program?	Yes	No
11. Intended or Appropriate Audience		
a. It is clear for whom the program was designed?	Yes	No
b. Is it clear for whom it is appropriate?	Yes	No
D. TECHNICAL DESIGN		
1. Is the program "error free"?	Yes	No
2. Does the program make effective, purposeful use of color, graphics and sound, or are they used just for "show"?	Yes	No
3. Does the program adequately provide for misspelled words, or variations of responses.	Yes	No
E. SUPPORT MATERIALS		
1. Are the objectives of the support materials clearly defined?	Yes	No
a. Do they match/complement those of the program?	Yes	No
2. Is it evident whether support materials are optional or required for proper use of the program?	Yes	No
3. Do the support materials provide the teacher with additional background, i.e., a bibliography or other resources, sample run of the program, etc.?	Yes	No
4. Are the student materials effective, attractive, appealing, useful, etc.?	Yes	No
F. EQUIPMENT — Have the following factors been taken into account and found acceptable or available:		
1. Appropriate computer?	Yes	No
2. Language?	Yes	No
3. Memory?	Yes	No
4. Disk or Tape?	Yes	No
5. Special equipment such as a printer, light pen, paddles, joy stick, etc.?	Yes	No

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Program Evaluation

Select a score from 0-4 for each criterion and write the score in the right-hand column. A score of 4 indicates EXCELLENT; 3 indicates GOOD; 2 indicates SATISFACTORY; 1 indicates UNSATISFACTORY, and 0 indicates NOT APPROPRIATE.

Criterion	Score
Content is curriculum-based.	
Content is accurate and free of grammatical, punctuation, and spelling errors.	
Instructional objectives are stated clearly and are important to the curriculum.	
Content matches instructional objective.	
Method used to teach content is effective.	
Instructional strategies are interesting and motivating.	
Reading level is appropriate to target audience.	
Tests are designed well, including a sufficient number of test items to assess mastery.	
Content is free of race, ethnic, and sex stereotypes.	
Teacher support includes clear and detailed information on content, instructional objectives, and technical use of program.	
Students can be placed easily in the appropriate level of the program.	
Adequate record-keeping information and materials are provided.	
Student has option to receive directions on-screen or proceed directly to assigned lesson.	
Method of entering answers is appropriate to intended users, including use of back spacing for erasure.	
Student controls pace of program presentation.	
Student receives appropriate and effective feedback.	

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Student interacts with the computer in a purposeful way.	
Student can exit the program before completing the lesson, if necessary.	
Program loads easily and is technically sound.	
Program branches to appropriate level of difficulty.	
Menu items are descriptive.	
Screen displays are clear.	
Graphics and sound contribute to instructional quality, if they are used.	
Length of lesson is appropriate to student attention span.	
Packaging allows easy access and storage of program.	
Total:	

Scoring

Step 1: Add the scores for all the criteria to find the total score.

Step 2: Subtract the number of "Not Appropriate" criteria from the total number of criteria (26), to find the number of criteria covered by the program.

(26) - ("Not Appropriate") = Criteria Covered

Step 3: Divide the total score by the number of criteria covered to find the final score for the program.

$$\frac{\text{(Total Score)}}{\text{(Criteria Covered)}} = \text{Final Score}$$

Step 4: Compare the final score with the following ratings:

4 = Excellent
3 = Good
2 = Satisfactory
1 = Unsatisfactory

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(This form may be copied as needed; for additional information, see Journal Reviews Vol. 1 No. 1

Evaluator Name _____ Organization _____ Position _____

Address _____ No. of Progs. _____

Product Name _____ Supplier _____ Vendor Unit Name _____ Price $ _____

Applicable School

Date Tested/Used _____

INSTRUCTIONS - For each numbered item, supply all information requested in blanks provided. If possible, use score sheets (if necessary, for objective items shown with blanks to left, enter a number in the blank to indicate the extent to which the program fulfills the description in the item, as follows: 2 = Completely, 1 = Partially, 0 = Not at All. If the item is not applicable to the program, enter N/A. If the item is unclear, enter U. Elaborate on answers as necessary in Comments section at end or on extra sheets, giving item numbers.

OVERVIEW - Describe the program briefly in terms of its goals and what it does to achieve them (no evaluation here).

_____

_____

PRELIMINARY CONSIDERATION - Assuming that this program contributes to the teaching of one or more topics, is that topic one which is or should be taught in today's schools? Yes No If not, give your reasons for this answer in the Comments section at the end of the form and omit the balance of the questionnaire.

DOCUMENTATION - List materials accompanying the program, e.g., teachers guide, student workbook.

1. Indicate types of information included.
   a. Suggested course/subject, grade levels.
   b. Goals.
   c. Performance objectives.
   d. Suggested teaching strategy(ies).
   e. Correlation with standard texts.
   f. Prerequisites for use of program.
   g. Student exercises, teacher answers.
   h. Operating instructions.
   i. Listing and sample runs of program(s).
   j. If a simulation, description of the model used.
   k. Suggested topics for follow-up discussions.
   l. Suggested references/activities for follow-up.
2. The documentation is written clearly.
3. If a workbook is included, the format and content are appropriate.

INSTRUCTIONS GIVEN TO USER BY PROGRAM
1. The instructions are adequate regarding:
   a. The instructional task to be performed.
   b. Details of how to interact with the program.
2. User has the option of skipping instructions if already known.

STUDENT-COMPUTER DIALOG
1. Output is displayed across by screens (pages) rather than scrolled.
2. If output is paged:
   a. User has control over continuing to the next page.
   b. Amount of information in each page is appropriate.
   c. The perceptual impact (amount of type and lines) is suitable.
3. Output is spaced and formatted so as to be easily readable.
4. Language is well suited to most students' reading ability.
5. Uses correct grammar,spelling, hyphenation and punctuation.
6. Any grid or coordinate system used is consistent with common conventions.
7. Students can respond with common symbols & ways of using them, e.g., right to left entry of name.
8. Accepts abbreviations for common responses.
9. Provides for individual needs, e.g., opportunity to work with harder or easier material.
10. Dialog is personalized, i.e., makes appropriate use of student names.
11. Uses devices to get & maintain interest, e.g., variation of computer responses, humor, pace change, surprise.
12. Makes good use of any special features of computer:
   a. Graphics
   b. Color
   c. Sound
13. Reinforcing responses (indications of right, wrong, etc.) are appropriate.
14. The number of wrong answers allowed is reasonable.
15. Responds appropriately if allowed number of wrong answers is exceeded.
16. Provides opportunity to get help if difficulty is encountered.
17. Minimizes bad entries via devices such as objective formats (multiple choice,etc).
18. Deals well with inappropriate entries, i.e., response to typing errors, etc., is intelligible and useful.
19. Required entries are within students' capabilities (esp. typing, vocabulary,).
20. Reports student performance periodically and at end of session.

MISCELLANEOUS CONCERNS
1. If a simulation, the program gives a sufficiently accurate representation of the situation simulated.
2. The concepts and vocabulary required to use the program are reasonable.
3. Operates properly and is free of bugs.
4. Is well structured and documented internally to facilitate any necessary debugging/modification.

COMMENTS - Please use this space and additional sheets as necessary to provide any other information which you believe would help someone who was considering acquiring the program being reviewed. In particular, indicate what you like least and most about the program. Also, list any changes which should be made.)

_____

_____

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Software Evaluation Form

Reviewer's Name: _____ Date of Review: _____

Address/Phone: _____ ( ) _____

Program Title _____ Medium: ___5" disk; ___8" disk;

___cartridge; ___tape

Package Title _____ Copyright Date (if any) _____

Microcomputer (brand, model, memory) _____

Necessary Hardware _____ Necessary Software _____

Producer _____ Author(s) _____

Back-up Copy Policy _____ Cost _____

PART 1

Program Overview and Description

1. Subject area and specific topic _____
2. Prerequisite skills necessary _____
3. Appropriate grade level (circle) 1 2 3 4 5 6 7 8 9 10 11 12 college
4. Type of program (check one or more)
   - ___ Simulation
   - ___ Educational Game
   - ___ Drill and Practice
   - ___ Tutorial
   - ___ Problem Solving
   - ___ Authoring System
   - ___ Testing
   - ___ Classroom Management
   - ___ Other (specify) _____
   - ___ Remediation
   - ___ Enrichment
5. Appropriate group instructional size: ___ individual ___ small group ___ class
6. Is this program an appropriate instructional use of the computer? _____
7. Briefly list the program's objectives. Are they clearly stated in the program or in the documentation? Are they educationally valuable? Are they achieved?
8. Briefly describe the program. Mention any special strengths or weaknesses.

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PART 2

Evaluation Checklist

Please check Yes, No, or Not Applicable for each question below. To add information, or to clarify an answer, use "Comments" at the end of each section.

Yes	No	N/A	EDUCATIONAL CONTENT
_____	_____	_____	1. Is the program's content accurate?
_____	_____	_____	2. Is the program content appropriate for intended users?
_____	_____	_____	3. Is the difficulty level consistent for material, interest, and vocabulary?
_____	_____	_____	4. Is the program content free of racial, sexual, or political bias?

Comments: _____

_____

Yes	No	N/A	PRESENTATION
_____	_____	_____	1. Is the program free of technical problems?
_____	_____	_____	2. Are the instructions clear?
_____	_____	_____	3. Is the curriculum material logically presented and well organized?
_____	_____	_____	4. Do graphics, sound, and color, if used, enhance the instructional presentation?
_____	_____	_____	5. Is the frame display clear and easy to read?

Comments: _____

_____

Yes	No	N/A	INTERACTION
_____	_____	_____	1. Is the feedback effective and appropriate?
_____	_____	_____	2. Do cues and prompts help students to answer questions correctly?
_____	_____	_____	3. Can students access the program "menu" for help or to change activities?
_____	_____	_____	4. Can student's control the pace and sequence of the program?
_____	_____	_____	5. Are there safeguards against students "bombing" the program by erroneous inputs?

Comments: _____

_____

Yes	No	N/A	TEACHER USE
_____	_____	_____	1. Is record-keeping possible (within the program or through documentation worksheets)?
_____	_____	_____	2. Does teacher have t.. monitor student use?
_____	_____	_____	3. Can teacher modify the program?
_____	_____	_____	4. Is the documentation clear and comprehensive?

Comments: _____

_____

PART 3

Overall Evaluation

CHECK ONE.

_____Excellent program. Recommend without hesitation.

_____Pretty good program. Consider purchase.

_____Fair. But might want to wait for something better.

_____Not useful. Do not recommend purchase.

Appendix IV

Where to Find Reviews of Courseware

MAGAZINES

Review Journals

Courseware Report Card

(Two editions: K-6 and 7-12) 150 West Carob Street, Compton, California 90220. (213) 979-1955; (213) 637-2131
$49.50 for 5 issues/year. Average number of reviews per issue: 20-25. In-depth description and evaluation, including capsule summary rating various aspects of the program from "A" to "F."

Dvorak's Software Review

704 Salano Avenue, Albany, California 94706.
$5.00 for 8 issues/year. Average number of reviews per issue: 2-5. North Star software only.

The Apple Journal of Courseware Review

Apple Educational Foundation, 20525 Mariani Avenue, Cupertino, California 95014. (408) 973-2105.
$5.95 per issue; 2 issues/year. Average number of reviews per issue: 20. In-depth critical evaluations with complete descriptions of each program and its potential for effective classroom use. Apple software only. Photographs of actual screens from each program. Available from microcomputer dealers.

Pipeline

Conduit, University of Iowa, Box 388, Iowa City, Iowa 52244. (319) 355-5789.
$15 for 3 issues/year. Average number of reviews per issue: 8. Primarily college level but useful for advanced high school mathematics and science classes.

School Microware Reviews

Dresden Associates, Box 246, Dresden, Maine 04342.
$40 for 2 issues/year. Offers rating scale 1-10. Apple, PET and TRS-80 software only.

80 Software Critique

P.O. Box 134, Waukegan, Illinois 60085.
$24 for 4 issues/year. Offers rating scale 1-100.

Other Periodicals

AEDS Monitor

1201 - 16th Street N.W., Washington, D.C. 20036. (202) 822-7845.
$15 for 4 issues/year. Average number of reviews per issue: 2. Article "Survey of Commercial Software" by Karen Jostad and Marge Dosel (October/December 1980) surveys 1,225 software programs.

Arithmetic Teacher

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22901. (703) 620-9840.
$36 for 9 issues/year. $30 membership dues include magazine subscription. Average reviews per issue: 5. Mathematics programs only.

Classroom Computer News

Box 266, Cambridge, Maine 02138. (617) 923-8595.
$16 for 6 issues/year. Four to five fairly extensive reviews per issue. Currently expanding review coverage.

The Computing Teacher

Department of Computer and Information Science, University of Oregon, Eugene, Oregon 97403.
$14.50 for 9 issues/year. Average number of reviews per issues: 8. Often includes reviews produced by Micro-SIFT.

Creative Computing

Box 789-M, Morristown, New Jersey 07690. (800) 631-8112; or in New Jersey (201) 540-0445.
$24.97 for 12 issues/year. Average number of instructional software reviews per issue: 20. Short descriptions with some critical evaluation.

CUE Newsletter

c/o Don McKell, Computer-Using Educators, P.O. Box 18547, San Jose, California 95158.
$6 membership dues includes 6 issues/year. Average number of reviews per issue: 2-6.

Educational Computer

Box 535, Cupertino, California 95015.
$15 for 6 issues/year. Average number of reviews per issue: 1. A thorough, critical evaluation.

Educational Technology

140 Sylvan Avenue, Englewood Cliffs, New Jersey 07632. (201) 871-4007.
$49 for 12 issues/year. Average number of reviews per issue: 6. In-depth evaluations, with detailed information on field-testing.

Electronic Learning

902 Sylvan Avenue, Englewood Cliffs, New Jersey 07632.
$19 for 8 issues/year. Average reviews per issue: 4-6. Each one prepared by teams of curriculum specialists, teachers, administrators, and (where appropriate) students.

EPIE Report

EPIE Institute, Box 620, Stony Brook, New York 11790.
$25 for 18 issues/year; $5 for associate subscriptions, reviews per issue: 5-6. Mostly mathematics in first issue.

InfoWorld

375 Cochituate Road, Box 880, Framingham, Maine 01701.
$25 for 51 issues/year. Average number of instructional software reviews per isue: 5 (July-September only)

MACUL Journal

Michigan Association for Computer Users in Learning. Wayne County, ISD, 33500 Van Born Road, Wayne, Michigan 48184.
$5 membership dues include annual issue of reviews which contain 113 reviews in 1980 and 143 in 1981. Plans for 1982 issue indefinite.

Mathematics Teacher

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091. (703) 620-9840.
$36 for 9 issues/year. Average number of reviews per issue: varies. Brief descriptions with occasional critical comments; includes references to software reviews in other journals.

Microcomputers in Education

Queue, 5 Chapel Hill Drive, Fairfield, Connecticut 06432.
$24 for 12 issues/year. Average number of reviews per issue: varies. Brief descriptions with occasional critical comments; includes references to software reviews in other journals.

Micro-Scope

Jem Research Discovery Park, University of Victoria, Box 1700, Victoria, B.C. V8W 2Y2, Canada. (604) 477-7246.
$10 for 12 issues/year. Average number of reviews per issue: 3-6.

Peelings II

P.O. Box 188, Las Cruces, New Mexico 88001. (505) 526-8364.
$15 for 6 issues/year. Average number of instructional software reviews per issue: 1-2.

Personal Computing

P.O. Box 2941, Boulder, Colorado 80321.
$18 for 12 issues/year. Average number of instructional software reviews per issue: 1-2.

Software Review

Microform Review, 520 Riverside Avenue, Westport, Connecticut 06880. (203) 226-6967.
$38 for 2 issues/year; in 1983, $50 for 4 issues/year. Average reviews per issue: 2-6. Very detailed (6-10 pages long); with illustrations.

T.H.E. Journal

Technical Horizons in Education, P.O. Box 992, Acton, MA 01720. (617) 263-3607.
$15 for 12 issues/year; free for qualifying educators, administrators or department heads). Listings of newly-leased software.

TRS-80 Users Journal

P.O. Box 7112, Tacoma, Washington 98407. (?06) 759-9642.
$16 for 6 issues/year. TRS-80 software only.

80 Microcomputing

P.O. Box 981, Farmingdale, New York 11737.
$18 for 12 issues/year. Average number of instructional software reviews per issue: 5. TRS-80 software only.

Appendix V

Northwest Regional Educational Laboratory

RICE

Resources in Computer Education

MicroSIFT

300 S. W. Sixth Avenue, Portland, Oregon 97204 (503) 248-6800

What is RICE?

RICE, Resources in Computer Education, is an information base designed to provide information about the state of the art in the application of computers in schools. It is a database installed in the computer of Bibliographic Retrieval Services, Inc. (BRS) in Latham, New York. It was designed by the staff of the Northwest Regional Educational Laboratory, with support from the National Institute of Education.

At present, two categories of information comprise the database:

- Producers, which includes commercial and noncommercial producers of computer-based instructional and administrative software
- Software Packages, which contains descriptive and evaluative information about known products from producers

Descriptive information is being entered on all known software products for education. Evaluation data is entered on those products for which it is available. Complete data from MicroSIFT evaluations is included, and bibliographic references are cited for other sources of evaluative data.

Additional categories of information will be added to RICE during 1983. Producer and Software categories will also be updated and enlarged on a regular basis as new information is available.

How does one gain access to RICE?

It is anticipated that most of the direct access to RICE will be by organizations such as intermediate education units and state education agencies which provide search services to their constituent districts or schools. Any library or other center that provides ERIC search services using the BRS system could also access RICE if they wish.

To conduct searches, three things are required: (1) the agency must be a subscriber to BRS, Inc.; (2) the agency must have computer terminal equipment; (3) the agency will need a staff member trained or experienced in searching databases.

1. Subscription. If not already a subscriber, the easiest method is for the agency to join the School Practices Information Network (SPIN). There is a one-time cost of $150 to join SPIN. Applications can be obtained from BRS, Inc., 1200 Route 7, Latham, New York 12110, (518) 783-1161 or from local representatives of Scott, Foresman and Company.

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USING YOUR MICROCOMPUTER AS A TERMINAL

Virtually any microcomputer can be used as a communicating data terminal, thus permitting access to BRS without the purchase of a separate terminal. Accessories necessary to convert micros to terminals vary from computer to computer. Usually a telephone modem (modulator/demodulator), a communications interface or card, and a terminal emulator software package are needed. The following technical requirements must be met when configuring a microcomputer to interface with BRS:

- Baud Rate -300 or 1200 baud
- Parity -Off or Zero (0)
- Duplex -Half or Full
- Data Length -7 data bits & 1 stop bit

A few of the popular microcomputers and accessories needed to access BRS are listed below:

MICROCOMPUTER EQUIPMENT REQUIREMENTS TO INTERFACE WITH BRS

MICROCOMPUTER	NECESSARY HARDWARE/SOFTWARE
APPLE II	Telephone modem and communications card, or Hayes Micromodem II, and terminal software.
APPLE II PLUS	Modem, communications card and terminal software.
ATARI 400/800	ATARI 850 Interface module, modem, and software.
COMMODORE PET/CBM	IEEE Interface, modem, and terminal software.
IBM PERSONAL COMPUTER	Modem, communications adapter, and optional terminal software.
TEXAS INSTRUMENTS 99/4, 99/4A	RS-232 interface, modem, and terminal EMULATOR II software cartridge.
TRS-80 Model I	RS-232 interface board, expansion interface, modem, and RS Term software OR Special RS 925-1172) modem and software.
TRS-80 Model II	Modem and RS-232 cable. Software optional.
TRS-80 Model III	RS-232 interface board, modem, and RS Term software.
Most CP/M-based microcomputers	Telephone modem and RS-232 port.

When configuring a microcomputer as a terminal, a consultation with the hardware/software dealer is imperative. BRS Customer Service offers assistance as well. Please have all hardware/and terminal software documentation readily available when calling to facilitate answers and avoid trial and error.

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Superintendent of Public Instruction

DR. FRANK B. BROUILLET • TUMWATER, WA 98504